

Post PQE 2023

Workshop on Quantum Mechanics: Foundations and Applications

IQSE Seminar Room (MPHY 578), Texas A&M University, College Station, TX

Zoom Info: <https://tamu.zoom.us/j/8192969939?pwd=L2tET2tEeU54YXNHelY2VVZWdnEzdz09>

Meeting ID: 819 296 9939, Pass code: 297578

Tuesday 1/17/2023

Quantum Mechanics and Gravity		Chair: Olga Kocharovskaya
Time	Speaker	Title
8:30-8:55	Breakfast	
8:55-9:00	Marlan Scully, <i>TAMU</i>	Opening Remarks
9:00-9:20	Marlan Scully, <i>TAMU</i>	Photon Entanglement in Unruh and Hawking Radiation
9:20-10:00	Zhedong Zhang, <i>City University of Hong Kong</i>	Multidimensional spectroscopy of molecules with entangled photons
10:00-10:20	Roland Allen, <i>TAMU</i>	Thermodynamics of black holes and expanding universe: old results from a fresh perspective, and a challenge for relativists
10:20-10:50	Coffee Break	
10:50-11:10	Goong “Gordon” Chen, <i>TAMU</i>	The Wing-Flapping Modes of an Eagle
11:10-12:00	Poster Session	

Lunch (Jason’s Deli) to be served between 12:00 and 13:00.

Quantum Foundation, Quantum Information, and Cavity QED		Chair: Girish Agarwal
Time	Speaker	Title
13:00-13:20	Vitaly Kocharovsky, <i>TAMU</i>	The nature of quantum supremacy
13:20-14:00	Dawei Wang, <i>Zhejiang University</i>	Observing the quantum topology of light
14:00-14:30	Coffee Break	
14:30-15:10	Shengwang Du, <i>University of Texas at Dallas</i>	Quantum Langevin theory for two coupled phase-conjugated electromagnetic waves
15:10-15:30	Alexey Belyanin, <i>TAMU</i>	Quantum dynamics of strongly coupled systems in dissipative nanocavities
15:30-15:50	Barnabas Kim, <i>TAMU</i>	Trends in Photonic Quantum Heat Engine

Wednesday 1/18/2023

Nonlinear Optics, Spectroscopy, and Quantum Sensing		Chair: Anatoly Svidzinsky
Time	Speaker	Title
8:30-9:00	Breakfast	
9:00-9:20	Philip Hemmer, <i>TAMU</i>	New opportunities for biosensing with fluorescent diamond and phosphor nanoparticles
9:20-9:40	Olga Kocharovskaya, <i>TAMU</i>	Toward ^{45}Sc quantum nuclear metrology
9:40-10:00	Alexei Sokolov, <i>TAMU</i>	Quantum Sensing of Molecular Vibrations
10:00-10:20	Zhenhuan Yi, <i>TAMU</i>	Toward Tip-enhanced Low Frequency Raman
10:20-11:00	Coffee Break	
11:00-11:20	Aleksei Zheltikov, <i>TAMU</i>	“Physical” and “unphysical” Cherenkov radiation from laser filaments
11:20-11:40	Jizhou Wang, <i>TAMU</i>	Widefield Single-shot IR Imaging with High Spatial Resolution
11:40-12:00	Suhail Zubairy, <i>TAMU</i>	Vacuum Rabi oscillations inside a cavity with atomic mirrors

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Quantum Field theory in Curved Space-Time		Chair: Marlan Scully
Time	Speaker	Title
13:00-13:20	Arash Azizi, <i>TAMU</i>	Kappa vacua: Infinite number of new vacua in two-dimensional quantum field theory
13:20-14:00	Georgi Gary Rozenman, <i>Tel Aviv University</i>	Surface Gravity Waves as a Universal Platform to Emulate Physical Phenomena
14:00-14:30	Coffee Break	
14:30-15:10	Denys Bondar, <i>Tulane University</i>	Quantum alchemy: How to make lead look like gold
15:10-15:30	Anatoly Svidzinsky, <i>TAMU</i>	Analogy between field vacuum and weakly interacting BEC
15:30-15:50	Jonathan Ben-Benjamin, <i>TAMU</i>	The Unruh Energy Paradox